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CERTIFICATION OF THE TRANSLATION

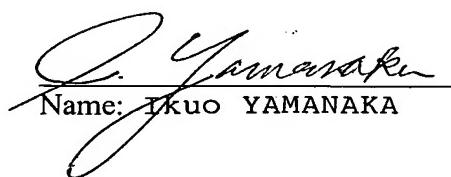
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Sir:

I, Ikuo YAMANAKA, certify that I am familiar with both the Japanese and English languages, that I have reviewed both the specification of the above identified application as filed in Japanese and the attached English language translation thereof, and that the English translation is accurate.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application.

Date: March 25, 2004



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GAMING MACHINEField of Technology

【0001】

The present invention relates to a gaming machine having variable display means for variably displaying various symbols necessary for a game and control means such as microcomputer and the like for controlling the variable display, the gaming machine including so-called Japanese pachi-slot machine; slot machine; ball flipping machine such as the first grade ~ third grade Japanese pachinko machine, arrange ball machine, mah-jong ball gaming machine or slit-slot machine; video slot machine; video poker machine and the like.

Description of Related Art

【0002】

For example, the Japanese pachi-slot machine has a mechanically variable display device in which it is provided a plurality of rotating reels each of which variably displays plural symbols within a display window arranged in front of the machine, the reels being parallel provided in plural lines. According to start operation by a player, the control means drives and controls the variable display device and the reels are rotated, thereby symbols on the reels are variably displayed. And rotation of each reel is stopped automatically or based on stop operation by the player. At that time, in a case that the symbols of each reel appearing within the display window comprises a predetermined combination (the winning mode), game media such as medals or coins are paid out, thereby a predetermined benefit is given to the player.

【0003】

Further, it is previously proposed a gaming machine having a plurality of reel drums, reel strips each of which is arranged on an outer periphery of each

reel drum and on each outer surface of which the symbols are described in a divided manner, light sources each of which illuminates the symbol division on each reel strip from the backside thereof and is arranged within each reel drum and control means for controlling illumination by the light sources. Here, in
5 the reel strip, the symbol portion is made semitransparent and the background of the symbol is made transparent or semitransparent, and the light source is constructed from a plurality of luminous diodes arranged in a dot-matrix manner. The control means controls light emission of each luminous diode, thereby light emission of the light source is controlled so as to display
10 characters or figures by the emitted diodes.

【0004】

And for example, in a case that an abnormal state such as "CR" (reverse movement of inserted medal) occurs, since this state generally occurs due to abnormality in the machine, it is previously known a gaming machine which
15 notifies that abnormality occurs in the machine.

【0005】

See, for example, Japanese unexamined Publication No. 2001-353255.

Summary of the Invention

20 【0006】

However, in the above information of abnormality, abnormality is continuously notified by only one mode, thus information necessary for notifying abnormality can not be suitably notified. Because of this, for example, if a clerk in a game arcade is not accustomed to the gaming machine,
25 it will occur that the clerk is perplexed with restoration work of the gaming machine from an abnormal state to a normal state, as a result, restoration work of the gaming machine cannot be smoothly conducted. Thereby, it will probably lead to a result to reduce game enjoyment of the player.

【0007】

It is an object of the present invention to provide a gaming machine in which information about abnormality occurring in the gaming machine is displayed in plural times on game result display means, thereby not only the player or the clerk of the game arcade can quickly find abnormality in the gaming machine and recognize contents of abnormality, but also restoration work of abnormality can be certainly and smoothly done by the clerk.

【0008】

The gaming machine of the present invention comprises:

game result display means for displaying a game result thereon;
beneficial state generating means for generating a beneficial state for a player when a predetermined game result is displayed on the game result display means (for example, the main control circuit 41, the sub-control circuit 71, both are mentioned later); and
abnormality notification means for notifying abnormality when the abnormality occurs in the gaming machine (for example, the sub-control circuit 71 mentioned later);
wherein the abnormality notification means notifies information concerning with the abnormality in plural times.

【0009】

In the concrete embodiment of the present invention, the abnormality notification means may sequentially notify the information concerning with the abnormality according to stages of restoration work from an abnormal state to a normal state.

【0010】

And in the concrete embodiment of the present invention, the abnormality notification means may repeatedly notify the information concerning with the abnormality.

【 0 0 1 1 】

Further, in the concrete embodiment of the present invention, the abnormality notification means may change the information concerning with the abnormality corresponding to progress of the restoration work or lapse of a
5 predetermined time.

【 0 0 1 2 】

And in the concrete embodiment of the present invention, the abnormality notification means may notify the information concerning with a predetermined abnormality when a predetermined operation is conducted.

10 【 0 0 1 3 】

The concrete embodiment of the present invention further comprises abnormality occurrence history storing means (for, example, the work RAM mentioned later), wherein the abnormality notification means can change a notifying mode based on the information stored in the abnormality occurrence
15 history storing means.

【 0 0 1 4 】

In the concrete embodiment of the present invention, the game result display means is constructed so as to include first display means (for example, the reels 3L, 3C, 3R mentioned later) and second display means (for example, the liquid crystal display device 31 mentioned later) arranged at a more front side than a display area of the first display means when seen from a front surface of the gaming machine, wherein the abnormality notification means can display the information concerning with the abnormality on the second display means.

25 【 0 0 1 5 】

The gaming machine of the present invention comprises: game result display means for displaying a game result thereon; beneficial state generating means for generating a beneficial state for a player when a predetermined

game result is displayed on the game result display means; and abnormality notification means for notifying abnormality when the abnormality occurs in the gaming machine; wherein the abnormality notification means notifies information concerning with the abnormality in plural times. Thereby, not only the player or the clerk of the game arcade can quickly find abnormality in the gaming machine and recognize contents of abnormality, but also restoration work of abnormality can be certainly and smoothly done by the clerk.

Brief Description of the Drawings

10 **【Fig. 1】**

Fig. 1 is a perspective view of a slot machine according to the embodiment.

【Fig. 2】

Fig. 2 is an explanatory view showing a panel display part and a liquid crystal display part.

【Fig. 3】

Fig. 3 is an explanatory view showing an external appearance of a reel mechanism in which lamps are arranged within each reel.

【Fig. 4】

20 Fig. 4 is a perspective view showing a reel and a circuit board for receiving LEDs therein arranged in the reel.

【Fig. 5】

Fig. 5 is a perspective view roughly showing a construction of the liquid crystal display device.

25 **【Fig. 6】**

Fig. 6 is an exploded perspective view showing a part of the liquid crystal display device.

【Fig. 7】

Fig. 7 is an explanatory view for explaining function of the LED lamps and fluorescent lamps.

【Fig. 8】

Fig. 8 is a block diagram showing an electrical circuit in the embodiment.

【Fig. 9】

Fig. 9 is a block diagram showing a construction of a sub-control circuit.

【Fig. 10】

Fig. 10 is an explanatory view schematically showing an abnormality notifying mode A.

【Fig. 11】

Fig. 11 is an explanatory view schematically showing an abnormality notifying mode B.

【Fig. 12】

Fig. 12 is an explanatory view schematically showing an abnormality notifying mode C.

【Fig. 13】

Fig. 13 is an explanatory view schematically showing an abnormality notifying mode D.

20

Detailed Description of the Invention

【O O 1 6】

Fig. 1 is a perspective view showing an outlined shape of a gaming machine 1 according to one embodiment of the present invention. Here, the gaming machine 1 is a so-called Japanese pachi-slot machine. Though, in the 25 gaming machine 1, a player plays games by using game media such as coins, medals or tokens, or a card in which information of game value given to the player is stored, it will be described hereinafter the gaming machine 1 in which medals are used.

【0017】

Presently, the Japanese pachi-slot machine in the main current has a plural kinds of winning modes. In particular, when a predetermined winning combination is accepted, the player can obtain a more beneficial gaming state
5 than a normal gaming state for a predetermined period without finishing the game by only one payout of medals. As such winning combination, there exist one winning combination in which the game relatively giving large benefit to the player can be done in predetermined times (this winning combination is called "BIG BONUS" and abbreviated as "BB" hereinafter) and another
10 winning combination in which the game relatively giving small benefit to the player in predetermined times (this winning combination is called "REGULAR BONUS" and abbreviated "RB" hereinafter).

【0018】

And in the Japanese pachi-slot machine in the main current, in order to materialize the winning combination that medals or coins are paid out when a predetermined symbol combination stands side by side along pay lines made activated (abbreviated as "activated line" hereinafter), it is required to internally win the winning combination (abbreviated as "internal winning" hereinafter) by the internal lottery treatment (abbreviated as "internal lottery" hereinafter) and to conduct stop operation of the symbols by the player at the timing that the symbol combination indicating the winning combination internally won (abbreviated as "internal winning combination" hereinafter) can stop along the activated lines. That is to say, even if the winning combination is internally won, the winning according to the internal winning combination cannot be realized when the stop operation by the player is out of the timing.
20 Namely, in the present Japanese pachi-slot machine in the main current, it is required technique to conduct stop operation of the symbols at good timing. This technique is called "observation push", thus it is highly appreciated the
25

technical intervention in the present Japanese pachi-slot machine.

【 0 0 1 9 】

At the front surface of a cabinet 2 entirely forming the gaming machine 1, a panel display unit 2a, a liquid crystal display unit 2b and a fixed display unit 2c, which have substantially vertical planes, are formed. As for the panel display unit 2a, the liquid crystal display unit 2b and the fixed display unit 2c, they will be described with reference to Fig. 2, hereinafter. In the cabinet 2 (at the rear side of the liquid crystal display unit 2b), three reels 3L, 3C, 3R (the first display means comprising the game result display means), on each outer periphery of which symbol line comprising a plural kinds of symbols is described, are rotatably arranged along a horizontal line. The reels 3L, 3C, 3R form the variable display means. Symbols on each reel (rotational drum type display device) can be seen through symbol display areas 21L, 21C, 21R (shown in Fig. 2 hereinafter). Each reel is constructed so as to be able to rotate at a constant rotational speed (for example, 80 rotations / minute).

【 0 0 2 0 】

At a lower position of the panel display unit 2a, the liquid crystal display unit 2b and the fixed display unit 2c, a forward projection portion 4 having a substantially horizontal plane is formed. At the left side of the forward projection portion 4, it is arranged a BET switch 5 for betting medals credited by button pressing operation. At the right side of the forward projection portion 4, a medal insertion slot 6 is formed. At the front left side of the forward projection portion 4, it is provided a c/p switch 7 for switching credit/payout of medals obtained in the game by the player based on button pressing operation. On the basis of switching by the c/p switch 7, medals are paid out from a medal payout opening 8 and the paid medals are accumulated in a medal receiving tray 9.

【 0 0 2 1 】

At the right side of the C/P switch 7, a start lever 10 (game start instruction means operable by the player), which starts rotation of the reels when operated by the player and starts variable display of the symbols (starts the game) within each of the symbol display areas 21L, 21C, 21R (see Fig. 2), is provided so as to be able to rotate within a predetermined angle. At the front center of the forward projection portion 4 and the right side of the start lever 10, three stop buttons 11L 11C, 11R (game result leading means operable by the player), which is operated to stop rotation of the reels 3L, 3C, 3R, respectively, are arranged. At the upper left and right sides of the cabinet 2, speakers 12L, 12R are arranged. Between the speakers 12L, 12R, a payout table panel 13 which shows winning combinations of the symbols and the number of medals paid out as awards, is provided.

【 0 0 2 2 】

With reference to Fig. 2, the panel display unit 2a, the liquid crystal display unit 2b and the fixed display unit 2c will be explained.

【 0 0 2 3 】

The panel display unit 2a comprises a bonus game information display part 16, BET lamps 17a ~ 17c, a payout display part 18 and a credit display part 19. Here, the bonus display part 16 is constructed from 7-segment LEDs and displays the game information during the bonus game. The 1-BET lamp 17a, 2-BET lamp 17b and MAX-BET lamp 17c are turned on according to the medal number betted to conduct the game. The 1-BET lamp 17a is turned on when the betted medal number is "1". The 2-BET lamp 17b is turned on when the betted medal number is "2". And the MAX-BET lamp 17c is turned on when the betted medal number is "3". The payout display part 18 and the credit display part 19 are constructed from 7-segment LEDs respectively. The payout display part 18 displays the payout medal number when the winning is materialized. The credit display part 19 displays the medal number

accumulated (credited).

[0 0 2 4]

The liquid crystal display unit 2b comprises the symbol display areas 21L, 21C, 21R, window frame display areas 22L, 22C, 22R and effect display area 23. The display contents displayed on the liquid crystal display 2b are variably changed according to the variable symbol display mode of the reels 3L, 5 3C, 3R, stop display mode of the symbols and operation of a liquid crystal display device 31 mentioned hereinafter.

[0 0 2 5]

10 The symbol display areas 21L, 21C, 21R are provided corresponding to the reels 3L, 3C, 3R, respectively, and display the symbols arranged on the outer periphery of the reels 3L, 3C, 3R and various effects thereon. Here, in a case that the reels 3L, 3C, 3R corresponding to the symbol display areas 21L, 21C, 21R are rotating or the stop buttons 11L, 11C, 11R corresponding to the 15 symbol display areas 21L, 21C, 21R are in a operable state for stop operation of the reels 3L, 3C, 3R, each symbol display area 21L, 21C, 21R is transparently displayed so as to be able to easily recognize the symbols arranged on the outer peripheries of the reels 3L, 3C, 3R, and effect effected through still images or moving images by, for example, symbols, letters, figures, marks, characters is 20 not displayed.

[0 0 2 6]

The window frame display areas 22L, 22C, 22R are formed so as to enclose each symbol display area 21L, 21C, 21R and represents the frames of the symbols arranged on the outer peripheries of the reels 3L, 3C, 3R.

[0 0 2 7]

25 The effect display area 23 is formed in an area other than the symbol display areas 21L, 21C, 21R and the window frame display areas 22L, 22C, 22R in the liquid crystal display unit 2b. This effect display area 23 displays the

image (representing so-called "WIN LAMP") conclusively indicating that bonus winning is realizable, the effect to increase interest for games and the information necessary for the player to beneficially advance the game.

【 0 0 2 8 】

5 The fixed display unit 2c is an area to display the images determined beforehand. Concretely, the fixed display unit 2c displays" a part of row houses" which is described on a display plate 33 mentioned hereinafter. By combining the image displayed on the fixed display unit 2c and the image displayed on the effect display area 23, one still image or moving image can be
10 displayed. In the embodiment, one complete image of the row houses can be displayed.

【 0 0 2 9 】

Further, with reference to Figs. 3 and 4, LED lamps 29 arranged in the reels 3L, 3C, 3R will be described. The LED lamps 29 function as illumination means for illuminate the symbols arranged on the outer peripheries of the reels 3L, 3C, 3R and one of illumination means for illuminating the areas mainly corresponding to the symbol display areas 21L, 21C, 21R within an area of a liquid crystal panel 34 (mentioned later). Thus, the LED lamps 29 function as common illumination means for commonly illuminating the above symbols and
15 the areas. And the LED lamps 29 also function as rear illumination means for illuminating the first display means from the backside thereof.
20

【 0 0 3 0 】

As shown in Fig. 3, in the reels 3L, 3C, 3R, there are arranged LED receiving circuit boards 24 which are positioned behind the symbols of three symbol lines (totally nine symbols), each symbol line appearing in each of symbol display areas 21L, 21C, 21R when rotation of the reels 3L, 3C, 3R stops. Each LED receiving circuit board 24 has three LED receiving portions in each of which a plurality of LED lamps 29 are provided. Hereinafter, among nine

LED receiving portions, the LED receiving portion is serially represented by Z1, Z2 and Z3 from the left portion in the horizontal upper line, the LED receiving portion is serially represented by Z4, Z5 and Z6 from the left portion in the horizontal center line and the LED receiving portion is serially represented by 5 Z7, Z8 and Z9 from the left portion in the bottom horizontal line. The LED lamp 29 illuminates the rear side of the reel sheet by white light, the reel sheet being attached to the reel 3L, 3C, 3R along the outer periphery thereof. The reel sheet is made translucent, thus light emitted from the LED lamp 29 permeates to the front plane of the reel sheet.

10 【0031】

As shown in Fig. 4, the reel 3L is constructed from a cylindrical frame construction in which two circular frames 25 and 26 with the same shapes are connected by a plurality of connecting members 27 while separating with a distance (corresponding to the reel width) therebetween, and transmitting 15 members 28 for transmitting driving force of a stepping motor 53L (see Fig. 8) arranged in the center position of the frame construction to the circular frames 25 and 26. Here, the reel sheet attached to the outer periphery of the reel 3L is omitted.

【0032】

20 The LED receiving circuit board 24 arranged within the reel 3L has three LED receiving portions Z1, Z4 and Z7, each receiving a plurality of LED lamps 29. The LED receiving circuit board 24 is arranged so that the LED receiving portions Z1, Z4, Z7 position at rear sides of the symbols (totally three symbols), respectively, the symbols being seen through the symbol display area 21L by 25 the player. Here, though the reels 3C and 3R are not shown, both reels have the same construction and the LED receiving circuit board 24 is arranged within each reel.

【0033】

Next, with reference to Figs. 5 and 6, a transmission type liquid crystal display device 31 (corresponding to the second display means constructing the game result display means) will be described. Fig. 5 is a perspective view (seeing from the rear side of the cabinet 2) showing outline construction of the liquid crystal display device 31. Fig. 6 is an exploded perspective view showing a partial construction of the liquid crystal display device 31.

[0 0 3 4]

The liquid crystal display device 31 is constructed from a protect glass 32, a display plate 33, a liquid crystal panel 34, a light guide plate 35, a reflection film 36, fluorescent lamps 37a, 37b, 38a, 38b functioning as so-called white light sources (capable of emitting light including light having all wavelengths with a predetermined ratio so that specific colors are inconspicuous to eyes of persons), lamp holders 39a ~ 39h and a flexible circuit board (not shown) comprising a table carrier package (TCP) mounting an IC for driving the liquid crystal panel, the TCP being connected to a terminal portion of the liquid crystal panel 34. The liquid crystal display device 31 is arranged at a more front side than the display areas of the reels 3L, 3C, 3R (more front side than the display planes thereof) so as to spread over the reels 3L, 3C, 3R. And the reels 3L, 3C, 3R and the liquid crystal display device 31 are independently arranged (with a predetermined distance therebetween).

[0 0 3 5]

The protect glass 32 and the display plate 33 are made of light transmittable material. The protect glass 32 is provided with an object to protect the liquid crystal panel 34. At the areas corresponding to the panel display unit 2a of the display plate 33 and the fixed display unit 2c, images are described. Here, various display parts positioned at the rear side of the area in the display plate 33 corresponding to the panel display unit 2a and electric circuits for operating the BET lamps 17a ~ 17c are omitted to show.

【0036】

The liquid crystal panel 34 is formed by filling liquid crystal material in clearance formed between the transparent plate such as a glass plate on which thin film transistor layer is formed and the transparent plate facing thereto.

- 5 The display mode of the liquid crystal panel 34 is set to normally white. Here, "normally white" means a construction that the liquid crystal panel 34 becomes in a white display state (light can advance toward the display plane, that is, light transmitted can be seen from outside) when the liquid crystal panel 34 is not driven. By utilizing the liquid crystal panel 34 constructed to have the
10 normally white mode, the symbols (variable display and stop display of the symbol display parts) arranged on the reels 3L, 3C, 3R can be seen and recognized through the symbol display areas 21L, 21C, 21R even if it occurs a trouble that the liquid crystal panel cannot be driven. Thereby, the player can continue the game. That is to say, if the above trouble occurs, it can be
15 conducted the game based on the basic function such as the variable display and the stop display of the reels 3L, 3C, 3R.

【0037】

The light guide plate 35 is arranged at the rear side of the liquid crystal panel 34 in order to lead the light emitted from the luminescent lamps 37a, 37b
20 to the liquid crystal panel 34 (to illuminate the liquid crystal panel). For example, the light guide plate 35 is constructed from the light transmittable member with thickness of about 2 cm (having light transmitting ability) made of acrylic resin.

【0038】

- 25 As the reflection film 36, for example, it is used the member that silver deposition layer is formed on white polyester film or aluminium thin film. The reflection film 36 reflects light led to the light guide plate 35 toward the front side thereof. This reflection film 36 is constructed from a reflection area 36A

and non-reflection areas (non-transmittable areas) 36BL, 36BC, 36BR. The non-reflection areas 36BL, 36BC, 36BR are formed as the light transmittable areas which are made of transparent material and transmit the light led thereto without reflecting, and are arranged at each front position of symbols 5 (totally three symbols) displayed when rotation of the reels 3L, 3C, 3R is stopped. In this case, areas corresponding to the reel sheet function as the light transmittable areas. Concretely, sizes and positions of the non-reflection areas 36BL, 36BC, 36BR coincide with those of the symbol display areas 21L, 21C, 21R. The reflection area 36A reflects the light led thereto and functions 10 as one of the illumination means for the area mainly corresponding to the window frame display areas 22L, 22C, 22R and the effect display area 23 within the area on liquid crystal panel 34. According to the above construction, since the player can see and recognize variable display and stop display of the symbols in the symbol display areas through the light transmittable areas in 15 reflection means, the player can enjoy the game based on the display manner in the symbol display areas and the liquid crystal display device.

【 0 0 3 9 】

The fluorescent lamps 37a and 37b are arranged along the upper edge and the lower edge of the light guide plate 35 and both ends of the fluorescent 20 lamp 37a, 37b are supported by lamp holders 39. The fluorescent lamps 37a and 37b function as illumination means for the area mainly corresponding to the window frame display areas 22L, 22C, 22R and the effect display area 23 within the area on the liquid crystal panel 34. Namely, the fluorescent lamps 37a and 37b emit light led to the light guide plate 35 (the lamps separately lead 25 light to the light guide plate 35).

【 0 0 4 0 】

And the fluorescent lamps 38a and 38b are arranged so as to face toward the reels 3L, 3C, 3R at the upper and lower positions on the rear side of the

reflection film 36. The light, which is emitted from the fluorescent lamps 38a and 38b and reflected on the surface of the reels 3L, 3C, 3R, further entered in the non-reflection areas 36BL, 36BC, 36BR, illuminates the liquid crystal panel 34. Therefore, the fluorescent lamps 38a and 38b function as the illumination means for illuminating the symbols arranged on the reels 3L, 3C, 3R and one of the illumination means for the areas mainly corresponding to the symbol display areas 21L, 21C, 21R within the area on the liquid crystal panel 34. The fluorescent lamps 38a and 38b function as common illumination means for illuminating both the above symbols and areas. Further, the fluorescent lamps 38a and 38b also function as the forward illumination means for illuminating the first display means from the front side thereof.

【 0 0 4 1 】

As mentioned above, the first display means and the second display means are commonly illuminated by the common illumination means. That is to say, since not only the first display means but also the second display means are illuminated by the light emitted from the common illumination means, cost becomes cheaper than a case that the illumination means is independently arranged for each display means. Further, by controlling the common illumination means illumination control can made simple and the same illumination for two display means can be also realized at the same time.

【 0 0 4 2 】

Next, with reference to Fig. 7, function of the LED lamp 29 and the fluorescent lamps 37a, 37b, 38a, 38b will be described. In Fig. 7, moving direction of the emitted light from the lamp is shown by arrows.

【 0 0 4 3 】

Fig. 7 (1) schematically shows function of each lamp when the liquid crystal existing at the symbol display areas 12L, 21C, 21R is not driven (voltage is not added between the transparent plates of portions corresponding to the

symbol display areas in the liquid crystal panel 34).

[0 0 4 4]

A part of the light emitted from the fluorescent lamps 38a, 38b is reflected on the reel sheet. And a part of the light emitted from the LED lamps 29 arranged on the LED receiving circuit board 24 penetrates through the reel sheet. Since the above light penetrates through the non-reflection areas 36BL, 36BC, 36BR, the light guide plate 35 and the liquid crystal panel 36 both of which constructs the liquid crystal display device 31, the player can see and recognize the symbols arranged on the reels. Therefore, in a case that 10 the liquid crystal existing at the symbol display areas 12L, 21C, 21R is not driven, the LED lamps 29 and the fluorescent lamps 38a, 38b function as the illumination means for the symbols arranged on the reels 3L, 3C, 3R.

[0 0 4 5]

On the contrary, the light emitted from the fluorescent lamps 37a, 37b and led into the light guide plate 35 penetrates through the liquid crystal panel 34 and enters in eyes of the player. That is, the fluorescent lamps 37a, 37b function as the illumination means for the area in the liquid crystal panel 34 corresponding to the above window frame display areas 22L, 22C, 22R and the effect display area 23.

[0 0 4 6]

Fig. 7 (2) schematically shows function of each lamp when the liquid crystal existing at the symbol display areas 12L, 21C, 21R is driven (voltage is added between the transparent plates of portions corresponding to the symbol display areas in the liquid crystal panel 34).

[0 0 4 7]

A part of the light emitted from the fluorescent lamps 38a, 38b is reflected on the reel sheet. And a part of the light emitted from the LED lamps 29 penetrates through the reel sheet. Since a part of the above light is

reflected on or absorbed in or penetrated through the areas that the liquid crystal is driven within the area of the liquid crystal panel 34, the player can see and recognize the effect display and the like displayed on the symbol display areas 21L, 21C, 21R. Therefore, in a case that the liquid crystal 5 existing at the symbol display areas 12L, 21C, 21R is driven, the LED lamps 29 and the fluorescent lamps 38a, 38b function as the illumination means corresponding to the symbol display areas 21L, 21C, 21R within the area of the liquid crystal panel 34.

[0 0 4 8]

10 Here, in a case that a part of the areas corresponding to the symbol display areas 21L, 21C, 21R within the area of the liquid crystal panel 34 is driven, the LED lamps 29 and the fluorescent lamps 38a, 38b function as the illumination means for the symbols arranged on the reels 3L, 3C, 3R and for the areas corresponding to the liquid crystal not driven in the symbol display 15 areas 21L, 21C, 21R within the liquid crystal panel 34.

[0 0 4 9]

Fig. 8 shows the circuitry construction including a main control circuit 41 for controlling game treatment operation in the gaming machine 1, peripheral devices electrically connected to the main control circuit 41, and a sub-control 20 circuit 71 for controlling the liquid crystal display device 31 and speakers 12L, 12R based on the control command transmitted from the main control circuit 41. The main control circuit 41 and the sub-control circuit 71 construct the game result display control means. The main control circuit 41 has functions as the internal winning combination determination means, the first display control 25 means and the beneficial state producing means. The internal winning combination determination means determines the internal winning combination among plural winning combinations based on the output from the game start instruction means. The first display control means controls the

first display means based on the determined result by the internal winning combination determination means and the output by the game result leading means. The beneficial state producing means produces beneficial state for the player when a predetermined game result is displayed on the game result display means. And the sub-control circuit 71 controls the second display means based on the determined result by the internal winning combination determination means and the output from the game result leading means.

【 0 0 5 0 】

The main control circuit 41 is mainly constructed from a microcomputer 42 arranged on the circuit board, in addition to a circuit for sampling random number. The microcomputer 42 includes a CPU 43 conducting control operation according to preset program, a ROM 44 and a RAM 45.

【 0 0 5 1 】

To the CPU 43, a clock pulse generator 46 generating reference clock pulses, a frequency divider 47, a random number generator 48 for generating random numbers sampled and a sampling circuit 49 are connected respectively. Here, as the means for sampling random number, it may construct that random number sampling is done according to the operation program of the CPU 43 in the microcomputer 42. In this case, the random number generator 48 and the sampling circuit 49 may be omitted, or these may be remained to back up random number sampling operation.

【 0 0 5 2 】

In the ROM 44 of the microcomputer 42, there are stored a probability lottery table utilized for judging random number sampling conducted every operation of the start lever 10 (start operation), a stop control table for determining stop combination of the reels according to operation of the stop buttons and various control instructions (commands) to transmit to the sub-control circuit 71. Here, the sub-control circuit 71 never transmits

commands, information and the like to the main control circuit 41, but one-way transmission from the main control circuit 41 to the sub-control circuit 71 is only done.

【 0 0 5 3 】

5 In the circuit of Fig. 8, as main actuators controlled based on control signal from the microcomputer 42, there are various lamps (1-BET lamp 17a, 2-BET lamp 17b, MAX-BET lamp 17c), various display parts (bonus game information display part 16, payout display part 18, credit display part 19), a hopper 52 as the game value giving means (including drive part for payout) 10 accumulating medals and paying out a predetermined number of medals according to instruction by a hopper drive circuit 51 and stepping motors 53L, 53C, 53R for driving the reels 3L, 3C, 3R to be rotated.

【 0 0 5 4 】

A motor drive circuit 54 for driving and controlling the stepping motors 15 53L, 53C, 53R, a hopper drive circuit 51 for driving and controlling the hopper 52 and a lamp drive circuit 56 for driving and controlling various lamps and a display drive circuit 56 for driving and controlling display parts are connected to the output part of the CPU 43 through an I/O port 57. These drive circuits controls operation in each of the actuators when receiving control commands 20 such as drive commands each of which is output from the CPU 43.

【 0 0 5 5 】

Further, as for the input signal producing means mainly producing input signals which are necessary for the microcomputer 42 to produce the control commands, there are provided the BET switch 5, the medal sensor 6S for 25 detecting the inserted medals, the C/P switch 7, the start switch 10S, the reel stop signal circuit 58, the reel position detecting circuit 59 and the payout completion signal circuit 60. These are also connected to the CPU 43 through the I/O port 57.

[0 0 5 6]

The medal sensor 6S detects the medals inserted in the medal insertion slot 6. The start switch 10S detects operation of the start lever 10. The reel stop signal circuit 58 produces stop signal corresponding to operation of each 5 stop button 11L, 11C, 11R. The reel position detecting circuit 59 provides signal to detect the position of each reel 3L, 3C, 3R with the CPU 43 when receiving pulse signal from the reel rotation sensor. The payout completion signal circuit 60 produces signal for detecting the medal payout completion when the count number (corresponding to the medal number paid out from the 10 hopper 52) by the medal detection unit 52S reaches to data of a designated number.

[0 0 5 7]

In the circuit shown in Fig. 8, the random number generator 48 generates random numbers within a predetermined numeral range and the 15 sampling circuit 49 conducts sampling of one random number at the suitable timing after the start lever 10 is operated. Based on the thus sampled random number and the probability lottery table stored in the ROM 44, the internal winning combination of the symbols is determined. And after the internal winning combination is determined, sampling of the random number is 20 conducted again to select the "stop control table".

[0 0 5 8]

After rotation of the reels 3L, 3C, 3R is started, it is counted the number of the drive pulses each of which is provided with each of the stepping motors 53L, 53C, 53R, and the counted number is written in the predetermined area of 25 the RAM 45. The reset pulse is generated from each of the reels 3L, 3C, 3R every one rotation thereof, and these reset pulses are input to the CPU 43 through the reel position detecting circuit 59. Based on the thus obtained reset pulses, the count number of drive pulses counted in the RAM 45 is cleared

to "0". Thereby, in the RAM 45, the count number corresponding to the rotational position within one rotation in each of the reels 3L, 3C, 3R is stored.

【 0 0 5 9 】

In order to connect the rotational positions of the reels 3L, 3C, 3R with
5 the symbols described on the outer peripheries of the reels, a symbol table is
stored in the ROM 44. In this symbol table, both code numbers, each of which
is serially given every a predetermined rotational pitch of each reel 3L, 3C, 3R
by setting the rotational position producing the reset pulse as the reference
rotational position, and symbol codes, each of which indicates the symbol
10 provided corresponding to each of the code numbers, are connected with each
other.

【 0 0 6 0 】

Further, in the ROM 44, a winning symbol combination table is stored.
In the winning symbol combination table, winning symbol combinations
15 corresponding to various winnings, medal payout numbers each of which
corresponds to each winning and winning determination codes each of which
represents each winning, are corresponded with each other. The above
winning symbol combination table is referred when the stop control of the left
reel 3L, the center reel 3C and the right reel 3R is conducted and when the
20 winning is confirmed after all reels 3L, 3C, 3R are stopped.

【 0 0 6 1 】

When one of winning combinations is internally won by the lottery
treatment (probability lottery treatment) based on the above sampling of the
random number, the CPU 43 sends stop signals for conducting stop control of
25 the reels 3L, 3C, 3R to the motor drive circuit 54, based on the operation
signals sent from the reel stop signal circuit 58 at the timing that the player
operates the stop buttons 11L, 11C, 11R and the selected stop control table.

【 0 0 6 2 】

If the symbols stop in a stop mode that the winning combination internally won is realized, the CPU 43 provides the payout command signal to the hopper drive circuit 51, thereby a predetermined number of the medals are paid out from the hopper 52. At that time, the medal detection unit 52S 5 counts the number of medals paid out, and when the number of medals paid out reaches to the designated number, the medal payout completion signal is input to the CPU 43. Thereby, the CPU 43 stops driving of the hopper 52 through the hopper drive circuit 51, as a result, the payout treatment of the medals is terminated.

10 【 0 0 6 3 】

Fig. 9 shows a construction of the sub-control circuit 71. The sub-control circuit 71 conducts turning on and off treatment of the LED lamps 29 based on the control command from the main control circuit 41, display control of the liquid crystal display device 31 and output control of sounds 15 output from the speakers 12L, 12R. This sub-control circuit 71 is constructed on a separate circuit board from the circuit board on which the main control circuit 41 is formed and is mainly constructed from a microcomputer (abbreviated as "sub-microcomputer" hereinafter) 72. The sub-control circuit 71 is constructed from a LED drive circuit 77 as the display control means for 20 controlling a plurality of ornamental lamps, the LED lamps 29 and the fluorescent lamps 37a, 37b which are arranged on the cabinet of the gaming machine 1, an image control circuit 81 as the display control means of the liquid crystal display device 31, a sound source IC 78 for controlling sounds output from the speakers 12L, 12R and a power amplifier 79 acting as the 25 amplifier.

【 0 0 6 4 】

The sub-microcomputer 72 includes a sub-CPU 73 conducting control operation according to the control command sent from the main control circuit

41, a program ROM 74 acting as the memory means and a work RAM 75. Though the sub-control circuit 71 does not have the clock pulse generator, the frequency divider, the random number generator and the sampling circuit, it is constructed so that the random sampling is conducted in the operation program
5 of the sub-CPU 73. And the program ROM 74 stores the control program executed in the sub-CPU 73. Further, the program ROM 74 also stores the image control program concerning with display on the liquid crystal display device 31 and various select tables. The work RAM 75 is constructed as the temporary memory means utilized when the control program is executed by the
10 sub-CPU 73.

【0065】

The image control circuit 81 is constructed from an image control work RAM 83, an image ROM 86, a video RAM 87 and an image control IC 82. The image control IC 82 determines the display contents displayed on the liquid
15 crystal display device 31 based on parameters designated by the sub-CPU 73. The image control work RAM 83 is used for temporarily storing images when images are formed by the image control IC 82 and when images followingly displayed on the liquid crystal display device 31 are designated to the image control IC 82 by the sub-CPU 73. The image control IC 82 forms images.
20 corresponding to display contents determined by the sub-CPU 73 and outputs to the liquid crystal display device 31. The image ROM 86 stores various images to form the images to be displayed. And the video RAM 87 is constructed as the temporary memory means utilized when images are formed in the image control IC 82.

【0066】

In the gaming machine 1 of the embodiment, the above mentioned sub-CPU 73 has function as the abnormality notification means which notifies that abnormality occurs in a case that abnormality occurs in the gaming

machine 1 and displays information concerning with the abnormality occurring in the gaming machine 1 on the effect display area 23 of the liquid crystal display device 31 constructing the game result display means. And the sub-CPU 73 controls the liquid crystal display 31 so as to serially display the 5 information concerning with the abnormality occurring in the gaming machine 1 on the effect display area 23, according to stages of restoration work of the abnormality by the clerk in the game arcade (concretely, according to a predetermined time lapse or restoration procedures of the abnormality), so that the player or clerk can easily understand the information about the 10 abnormality in the game machine 1 (occurrence) of the abnormality, cause thereof, restoration stage of the abnormality, restoration of the abnormality, time lapse lapsed from occurrence of the abnormality and the like). Thereby, the player or the clerk in the game arcade can easily recognize the information about the abnormality and can smoothly conduct the restoration work of the 15 abnormality in the gaming machine 1.

【 0 0 6 7 】

Here, "notifying" means displaying characters, letters, figures, marks or combination thereof or combination of those and colors on the effect display area 23. Concretely, when the gaming machine normally operates a character "RED DONCHAN" 91 mentioned later is displayed on the effect area 23. On the contrary, when abnormality occurs in the gaming machine a character "GREEN DONCHAN" 92 mentioned later is displayed. And the restoration procedures of the abnormality (removing procedures of the cause that the abnormality occurs) are displayed by the letters on a green display area or a red display area for displaying the abnormality, both are mentioned later. Thereby, it can be quickly notified to the clerk in the game arcade that peripheral devices of the gaming machine become in the abnormal state and it can be effectively done the restoration work removing the cause of the 25

abnormality. Here, the restoration procedures displayed on the green display area and the red display area differs with each other according to the cause that the abnormality occurs. Though most of the players usually concentrates on the variable displaying / the stop display on the game result display means,
5 since the sub-CPU 73 controls the second display means so as to display the information about the abnormality, the players can recognize the error information suddenly occurring and occurrence of the abnormality and the contents thereof (for example, message of "please call the clerk") without moving their eyes so often, it immediately becomes a state that the players can
10 correspond to the errors, thereby it can be expected the effect to reduce unpleasant interruption time of the game.

【 0 0 6 8 】

As for the abnormality in the gaming machine 1, there are included, for example, an alarm, CE (passing time of the medal), CJ (passing check of the medal), CO (full state of the medals in a supplementary medal storing box), CR (reverse movement of the inserted medal), HE (hopper empty), HJ (hopper jamming), EE (illegal hit) and the like. Here, CE, CJ, CO, CR, HE, HJ, EE represent error codes.

【 0 0 6 9 】

20 The above mentioned work RAM 75 has function as the abnormality occurrence history storing means which counts the number of times of abnormality occurrence, and notifying mode for the abnormality is changed based on the information stored in the work RAM 75. Concretely speaking, there are three kinds of notifying modes. The first mode is the abnormality notifying mode A (Fig. 10) in which the number of times of the abnormality occurrence is 1-2 times. The second mode is the abnormality notifying mode B (Fig. 11) in which the number of times of the abnormality occurrence is 3 times. The third mode is the abnormality notifying mode C (Fig. 12) in which the

number of times of the abnormality occurrence is more than 4 times. Thereby, the clerk in the game arcade can easily perceive breakdown in the gaming machine or unfair act by the player.

【 0 0 7 0 】

5 Hereinafter, with reference to Figs. 10 ~ 13, the abnormality notifying modes A, B and C will be explained. Each of Figs. shows a series of flow from abnormality occurrence during normal operation of the gaming machine 1 till removal of the cause in the abnormality occurrence. The contents displayed on the effect display area 23 (the information concerning with the abnormality) 10 is changed corresponding to the restoration stages of the abnormality or the lapse time of the predetermined time. Thereby, it can be recognized according to change of the notifying mode the abnormality occurrence, the cause thereof, the restoration stage for the abnormality, the restoration of the abnormality and the lapse time lapsed from the abnormality occurrence.

15 【 0 0 7 1 】

Fig. 10 shows the abnormality notifying mode A. Here, Fig. 10 (1) shows a state that the gaming machine 1 is normally operating. The character "RED DONCHAN" 91 is shown in the lower part of the effect display area 23. The character "RED DONCHAN" 91 shows a state that the gaming 20 machine 1 is normally operable.

【 0 0 7 2 】

Here, if the abnormality (above mentioned CR in this embodiment) occurs in the gaming machine 1, it is displayed in the lower part of the effect display area 23 a blue abnormality display area 101, in which the message "ERROR OCCURS" is displayed, as shown in Fig. 10 (2). At that time, the character "GREEN DONCHAN" 92 is displayed in the right part of the effect display area 23. That is to say, it is shown to the player that the abnormality 25 occurs in the gaming machine.

【0073】

Here, when three seconds have elapsed, it is displayed a blue abnormality display area 102, in which the message "PLEASE CALL CLERK" is displayed, so as to superimpose with the blue abnormality display area 101, as shown in Fig. 10 (3). Namely, the blue abnormality display area 102 instructs the player to call the clerk in the game arcade.

【0074】

Here, thereafter when five seconds have elapsed, it is displayed a blue abnormality display area 103, in which the message "FIRST, PLEASE OPEN COVER" is displayed, so as to superimpose with the blue abnormality display area 102, as shown in Fig. 10 (4). That is to say, the blue abnormality display area 103 notifies the clerk of the removal procedure to remove the cause of the abnormality occurrence.

【0075】

Here, thereafter when three seconds have elapsed, it is displayed a blue abnormality display area 104, in which the message "PLEASE REMOVE MEDALS" is displayed, so as to superimpose with the blue abnormality display area 103, as shown in Fig. 10 (5). Namely, the blue abnormality display area 104 notifies the clerk of the next removal procedure to further remove the cause of the abnormality occurrence.

【0076】

As explained with reference to Figs. 10 (2) to 10 (5) according to the concrete examples, the abnormality notification means notifies the information concerning with the abnormality (error about reverse movement of the inserted medals) in plural times (four times for "ERROR OCCURS", "PLEASE CALL CLERK", "FIRST, OPEN COVER", "PLEASE REMOVE MEDALS").

【0077】

Here, thereafter when ten seconds have elapsed, only the blue

abnormality display area 101 is displayed as shown in Fig. 10 (6). That is to say, notification of the abnormality occurrence is repeatedly conducted. Thereby, since the clerk and the like person can confirm the contents notified according to the specific operation, they can surely conduct the restoration of
5 the abnormality.

【0078】

As explained according to the concrete examples shown in Figs. 10 (2) to 10 (6), the abnormality notification means notifies the information concerning with the abnormality (error about reverse movement of the inserted medals) in plural times (two times for "ERROR OCCURS" in Figs. 10 (2) and 10 (6)). Therefore, even if the person such as the clerk who restores the abnormality misses a part of the messages while four messages of "ERROR OCCURS", "PLEASE CALL CLERK", "FIRST, OPEN COVER" and "PLEASE REMOVE MEDALS" are repeatedly displayed, the same message is displayed after 10 several seconds. Thus, the person never misses the message and can surely 15 deal with the abnormality.

【0079】

Here, in a case that the cause of the abnormality occurrence is removed, the character "RED DONCHAN" 91 is displayed in the effect display area 23 as 20 shown in Fig. 10 (7), thereby it is notified that the gaming machine 1 becomes in a normally operable state. That is to say, the notifying mode is changed based on that the restoration work of the abnormality is terminated. This change in the notifying mode is displayed by characters, letters, figures, marks or combination thereof or combination of those and colors, and in this 25 embodiment, the notifying mode is changed from the character "GREEN DONCHAN" 91 to the character "RED DONCHAN" 92.

【0080】

As mentioned, in a case that it is adopted the function in which the error

is notified by the mode other than the character line information, it can expect an effect that decrease of enjoyment of the player is effectively restrained. Though many of players feel depressed or get irritated when the abnormality occurs in the gaming machine, it can make the player have pleasant and 5 diverted mood by the effect display other than the character line information, thereby it can expect that the player enjoys the game again with new feelings after the error is removed.

【0081】

Fig. 11 shows the abnormality notifying mode B. Here, Fig. 11 (1) 10 shows a state that the gaming machine 1 is normally operating. The character "RED DONCHAN" 91 is displayed in the lower part of the effect display area 23. Here, if the abnormality (above mentioned CR similar to the above case) occurs in the gaming machine 1, it is displayed in the lower part of the effect display area 23 a red abnormality display area 111, in which the message "ERROR OCCURS" is displayed, as shown in Fig. 11 (2). At that 15 time, the character "GREEN DONCHAN" 92 is displayed in the right part of the effect display area 23.

【0082】

Here, when three seconds have elapsed, it is displayed a red abnormality 20 display area 112, in which the message "PLEASE CALL CLERK" is displayed, so as to superimpose with the red abnormality display area 111, as shown in Fig. 11 (3). Here, thereafter when five seconds have elapsed, it is displayed a red abnormality display area 113, in which the message "FIRST, PLEASE 25 OPEN COVER" is displayed, so as to superimpose with the red abnormality display area 112, as shown in Fig. 11 (4).

【0083】

Here, thereafter when three seconds have elapsed, it is displayed a red abnormality display area 114, in which the message "PLEASE REMOVE

"MEDALS" is displayed, so as to superimpose with the red abnormality display area 113, as shown in Fig. 11 (5). Here, thereafter when ten seconds have elapsed, only the red abnormality display area 111 is displayed as shown in Fig. 11 (6). That is to say, notification of the abnormality occurrence is repeatedly conducted. Here, in a case that the cause of the abnormality occurrence is removed, the character "RED DONCHAN" 91 is displayed in the effect display area 23 as shown in Fig. 11 (7).

【 0 0 8 4 】

Fig. 12 shows the abnormality notifying mode C. Here, Fig. 12 (1) shows a state that the gaming machine 1 is normally operating. The character "RED DONCHAN" 91 is displayed in the lower part of the effect display area 23. Here, if the abnormality (above mentioned CR similar to the above case) occurs in the gaming machine 1, it is displayed in the lower part of the effect display area 23 a blue abnormality display area 101, in which the message "ERROR OCCURS" is displayed, as shown in Fig. 12 (2). At that time, the character "BLUE DONCHAN" 92 is displayed in the right part of the effect display area 23.

【 0 0 8 5 】

Here, when three seconds have elapsed, it is displayed a blue abnormality display area 102, in which the message "PLEASE CALL CLERK" is displayed, so as to superimpose with the blue abnormality display area 101, as shown in Fig. 12 (3). Here, thereafter when five seconds have elapsed, it is displayed a blue abnormality display area 103, in which the message "FIRST, PLEASE OPEN COVER" is displayed, so as to superimpose with the blue abnormality display area 102, as shown in Fig. 12 (4). Here, thereafter when three seconds have elapsed, it is displayed a blue abnormality display area 104, in which the message "PLEASE REMOVE MEDALS" is displayed, so as to superimpose with the blue abnormality display area 103, as shown in Fig. 12

(5);

[0 0 8 6]

Here, thereafter when ten seconds have elapsed, only the blue abnormality display area 101 is displayed as shown in Fig. 12 (6). That is to say, notification of the abnormality occurrence is repeatedly conducted. Here, in a case that the clerk in the game arcade removes the cause of the abnormality occurrence in the gaming machine 1, the character "RED DONCHAN" 91 is displayed in the effect display area 23 as shown in Fig. 12 (7).

[0 0 8 7]

Hereinafter, the abnormality notifying mode D will be explained with reference to Fig. 13.

[0 0 8 8]

Fig. 13 shows a series of flow from abnormality occurrence during normal operation of the gaming machine 1 till removal of the cause in the abnormality occurrence. Fig. 13 (1) shows a state that the gaming machine 1 is normally operating. The character "RED DONCHAN" 91 is shown in the lower part of the effect display area 23. Here, if the abnormality (above mentioned CR similar to the above case) occurs in the gaming machine 1, it is displayed in the lower part of the effect display area 23 a blue abnormality display area 101, in which the message "ERROR OCCURS" is displayed, as shown in Fig. 13 (2). At that time, the character "GREEN DONCHAN" 92 is displayed in the right part of the effect display area 23.

[0 0 8 9]

Here, when display operation of the cause of the abnormality occurrence is done by the clerk and the like person (including the player, business person), the cause of the abnormality occurrence is displayed in the effect display area 23 as shown in Fig. 13 (3). The display operation by the clerk can be

conducted by operating specific operation means (not shown) which is utilized to display the cause of the abnormality occurrence and arranged in the gaming machine 1. Here, when the clerk in the game arcade removes the cause of the abnormality occurrence, the character "RED DONCHAN" 91 is displayed in the
5 effect display area 23 as shown in Fig. 13 (4).

【 0 0 9 0 】

Though description is done according to the embodiments, the present invention is not limited to the above.

【 0 0 9 1 】

10 Though the above mentioned abnormality notification means changes the notifying mode based on the information stored in the abnormality occurrence history memory means, the present invention is not limited to the above and it may be changed the above notifying mode corresponding to the determination result by the internal winning combination determination means (for example, 15 the above mentioned CPU 43), which determines the internal winning combination.

【 0 0 9 2 】

And the notifying mode may be changed based on the specific operation. Concretely, though the characters "RED DONCHAN", "BLUE DONCHAN" and
20 "GREEN DONCHAN" displayed in the above notifying modes are determined beforehand, the displayed characters and the like may be changed to another characters by the specific operation.

【 0 0 9 3 】

Further, without being limited in the abnormal state occurring in the
25 gaming machine, it may be conceivable that the characters can be changed to another characters by the specific operation while the gaming machine is normally operating.

【 0 0 9 4 】

And it may be conceivable that the clerk in the game arcade can determine whether the above restoration procedure is notified more precisely or more simply.

【 0 0 9 5 】

5 Further, in the embodiment, though the above abnormality notification means changes the notifying mode according to the restoration stage of the abnormality or the lapse time of the predetermined time, the present invention is not limited to the above and it may be notified, for example, the next restoration procedure according to the specific operation. In this case, the
10 restoration procedure notified can be rapidly forwarded according to the stage of the restoration work of the abnormality by the clerk.

【 0 0 9 6 】

And, still images or moving images about the abnormality restoration may be displayed. For example, error restoration work may be displayed by
15 animation. In this case, even if the clerk is a worker of restoration who is not accustomed to the abnormality restoration work, the clerk can restore the abnormality by working according to the animation. Of course, by displaying the procedure combined with the character information, the person of restoration such as the clerk can see the display suitable for himself or herself
20 according to his or her skill.

【 0 0 9 7 】

Further, the abnormality notification may be done by both images and sounds. The person of restoration such as the clerk can confirm the contents of the restoration procedure by properly using images and sounds if necessary.
25 For example, there may be a case that working efficiency of the person of restoration can be further improved by confirming the restoration procedure through images when confirming type of the abnormality and through sounds when doing delicate works while opening the cabinet. Further, the

abnormality may be notified by the lamps arranged in the cabinet. In that case, it is suitable for the clerk apart from the cabinet to immediately perceive the abnormality.

【 0 0 9 8 】

5 The error codes such as CR, CE, CJ and the like may be notified. Such notification may be helpful to improve working efficiency for the clerk who does not need the long information and is accustomed to the restoration works.

【 0 0 9 9 】

10 Further, the error codes may be displayed on the display part (for example, the above mentioned liquid crystal display device 31) while the above mentioned abnormality notifying modes A to D are notified.

【 0 1 0 0 】

15 And, if the error is displayed by the information other than the character line information, the notifying mode may be changed every type of the error. For example, the character "GREEN DONCHAN" may be displayed in the case of hopper empty error and the character "RED DONCHAN" may be displayed in the case of hopper jamming error. As for the notifying mode other than the character line information, figures, characters, marks or combination thereof may be used. Thereby, error display is variegated and the player can divert wrath due to error occurrence. And if the player see the error display concerning the error with low incidence, such error is very novel and it is suitable for the player because it becomes a topic of conversation.

【 0 1 0 1 】

25 Further, as any one of the above mentioned first display means, the second display means and the third display means, it may be utilized a movable member with shapes such as characters, figures, dolls, animals, insects, famous constructions, fishes, vehicles and the like.

【 0 1 0 2 】

Further, it may be conceivable that the abnormality is notified by utilizing both the above mentioned first display means and the second display means. Thereby, the abnormality display makes the player recognize as the superimposed images. This type of display is a novel notification display not existing previously, the player can divert the unpleasant error occurrence.

[0 1 0 3]

And in the embodiment, though the reels 3L, 3C, 3R are adopted as the first display means and the liquid crystal display device 31 is adopted as the second display means, the present invention is not limited to this. For example, CRT, LCD, plasma display, 7-segment LED, LED dot-matrix, lamp, LED, fluorescent lamp, organic EL display, disc, electronic paper, flexible LED, flexible liquid crystal, liquid crystal projector, FED and the like can be adopted as the first display means, the second display means or the third display means. Further, the third display means different from the first display means and the second display means can be arranged at a more front side than the second display means when seeing the front side of the gaming machine, between the first display means and the second display means, or at a more rear side than the first display means when seeing the front side of the gaming machine. The display result displayed on the first display means, the second display means or the third display means is constructed from still images or moving images. The combination, in which two or more or all of the first display means, the second display means and the third display means are combined, can be integrally constructed. In this case, there may be a case that the unit integrally constructed can be wholly exchanged, and this case is preferable since time and labor for decomposing work or assembling work thereof can be omitted and maintenance work can be improved. Further, if parts and construction can be commonly used in the unit, this case is preferable since it can contribute to cost reduction. Of course, if the illumination means

commonly utilizable for the common illumination means is included in the unit, the same effect similar to the above can be expected.

【 0 1 0 4 】

Further, the beneficial state includes: a state that a predetermined combination (for example, replay, BB, RB, small combination, single bonus and the like) is materialized; free game; a state that information necessary for the player to favorably advance the game is notified; a state that probability to get internal winning of a predetermined combination is high; a state that winning of a predetermined combination is materialized with high probability; winning of a predetermined combination or a predetermined combination carried over is permitted to materialize with high probability; so-called "challenge time" that the reels are basically stopped based on the operation timing of the stop buttons by the player; small combination; medium combination; big combination; combination (state that so-called "symbol start opening" (symbol variable movement is started when a ball enters in the symbol start opening) is opened or enlarged; so-called "probability changing state", so-called "time shortening state"); or combination of the above states. Here, the small combination, the medium combination and the big combination concern with a state that so-called "big winning opening" is opened in the so-called Japanese Pachinko gaming machine.

【 0 1 0 5 】

And when the internal winning combination determination means determines a predetermined combination (for example, bonus) as the internal winning combination, one or plural or all of the illumination means included in the common illuminations means can be turned off. For example, the LED lamps 29 arranged for each of the reels 3L, 3C, 3R can be turned off every the operation button corresponding thereto is operated or every the operation button other than the above operation button is operated. Based on the above

constructions, interest for games increases. And the forward illumination means (the fluorescent lamps 38a, 38b) can be provided for each of the symbol display parts (the reels 3L, 3C, 3R).

[0 1 0 6]

5 Further, one or plural or all of the illumination means included in the common illumination means can be constructed so as to variably display. For example, still images or moving images can be displayed on the first display means (reel sheet) by changing the turning on mode of the LED lamps 29 or light colors emitted therefrom or by continuously changing those. And
10 self-emitting type plasma display, organic EL display and the like may be adopted as the illumination means (one example of the third illumination means), thereby images can be displayed on the first display means. By this constructions, interest for games increases.

[0 1 0 7]

15 In a case that the special game result (for example, the symbol combination indicating that bonus winning is materialized) is displayed on the first display means or the second display means, it can be provided the special gaming state producing means that the beneficial state for the player is displayed thereon. And both the special gaming state producing means and
20 the second display means can be formed on single control circuit board. And the gaming state can be displayed by superimposing the images displayed on the first display means and the images displayed on the second display means. Further, based on the trigger that a predetermined state is realized, the effect display on the second display means can be done so as to avoid the specific symbols stopped and displayed on the symbol display part or so as to superimpose the specific symbols. If the gaming state is displayed by the superimposed images, the beneficial state for the player may be produced with
25 high probability in comparison with the case in which the superimposed images

is not displayed. Thereby, it can include the effect that the player's expectation increases, in excess of the previous case. Thus, such effect can contribute to increase of interest.

[0 1 0 8]

5 In the embodiment, though the start lever 10 is adopted as the game start instruction means, the present invention is not limited to this. For example, the BET switch 5, the medal insertion slot 6, the medal sensor 6S or the start switch 10S can be adopted.

[0 1 0 9]

10 The display includes: display by the sense of sight, display by the sense of hearing, notification by the sense of smelling, turning on of the lamps or combination of those. The display mode includes: colors, patterns, shapes (outline shapes, interior shapes) and the like. And the game result can be displayed after operation of the game start instruction means or the game
15 result leading means.

[0 1 1 0]

In the embodiment, though the above mentioned LED drive circuit is utilized as the display control means for a plurality of the ornamental lamps, the LED lamps and the fluorescent lamps, each of which is arranged in the
20 cabinet, the present invention is not limited to this. Turning on control of the LED lamps may be conducted by another display control means. In this case, for example, in turning on control of the LED lamps, electric power may be provided so that the LED lamps are always turned on during a period from power-on of the gaming machine till power-off thereof. Here, turning on
25 includes blinking mode that the LED lamps are intermittently blinked with a very short time interval. Thus, since the LED lamps are always turned on, light emitted from the LED lamps always illuminates each symbol display area even if abnormality occurs in the mentioned LED drive circuit. Thereby, the

player can always see the symbols arranged on each of the reels through the each symbol display areas, thus the above turning on control is preferable.

【 0 1 1 1 】

Further, turning on control of the above mentioned fluorescent lamps
5 may be done by another display control means. In this case, for example, in the turning on control of the fluorescent lamps, electric power may be provided so that the fluorescent lamps are always turned on during a period from power-on of the gaming machine till power-off thereof. Thereby, similar to the above, light emitted from the fluorescent lamps always illuminates each symbol
10 display area even if abnormality occurs in the mentioned LED drive circuit. Thereby, the player can always see and recognize the symbols arranged on each of the reels through the each symbol display areas

【 0 1 1 2 】

Further, in the embodiment, though the above mentioned sub-CPU
15 conducts display control of a plurality of the ornamental lamps arranged in the cabinet, sound output control and image display control of the liquid crystal display device, the present invention is not limited to this. Another sub-CPU separate from the above sub-CPU may conduct the above various controls. For example, in a case that another sub-CPU separate from the above sub-CPU
20 conducts the control of a plurality of the ornamental lamps arranged in the cabinet and, for example, in a case that abnormality occurs in the display control, it is enough to exchange only the sub-CPU with abnormality occurrence or only the circuit construction including the sub-CPU with abnormality occurrence to the normal sub-CPU or circuit construction having
25 the normal sub-CPU. Therefore, time and labor for removing the cause of the abnormality occurrence can be omitted and such construction is very preferable. And in a case that another sub-CPU other than the above sub-CPU conducts sound output control or image display control, or for example, in a case that

abnormality occurs in the sound output control or the image display control, it is enough to exchange only the sub-CPU with abnormality occurrence or only circuit construction including the sub-CPU with abnormality occurrence.

【 0 1 1 3 】

5 Further, the liquid crystal display device described in the embodiment may have image enlarging means for enlarging the input images by a predetermined magnification. For example, the image enlarging means may convert the image data for 640 x 480 dots into the image data for 1024 x 768 dots and output the converted image data to the display part (above mentioned 10 terminal part). Thereby, it can use the image data for small display area, the data quantity thereof being less in comparison with that for the factual display area. As a result, memory quantity of the ROM and image data forming time can be reduced.

【 0 1 1 4 】

15 And in the embodiment, though the symbol display area is divided corresponding to each of three reels 3L, 3C, 3R, the present invention is not limited to this and the symbol display area may be formed so as not to be divided. For example, it may be conceivable that two or three of the reels 3L, 3C, 3R can be seen and recognized through one symbol display area. And if 20 the first display means and the third display means are arranged at the rear face or side of the second display means, it may be constructed that the player sees and recognizes through one symbol display area a part or whole of the first display means and a part or whole of the third display means. When the reflection means is produced, there may be a case that the reflection means can 25 be easily produced in comparison with a case that a plurality of transparent portions are formed dividedly.

【 0 1 1 5 】

Further, the present invention can apply to Japanese Pachinko gaming

machine, arrange ball gaming machine, mah-jong ball gaming machine, video-slot machine, video poker machine and the other machines, in addition to the slot machine in the embodiment. And even in the game program imitatively executing operation of the above mentioned slot machine in a family 5 gaming machine, the present invention can apply and execute the game. In this case, CD-ROM, FD (flexible disc) and the similar memory medium can be utilized for the memory medium for storing the game program.

[0 1 1 6]

Here, recently in the Japanese Pachinko gaming machine in the main current, the gaming machine, in which an electric display device such as the liquid crystal display device is arranged at the center of gaming plate, is popularized. In this electric display device, a plurality of symbols (abbreviated as "special symbols" hereinafter) represented by images are variably displayed, thereby three lines of reels in the slot machine are imitatively displayed. 10 When variable display of the special symbols stops and a predetermined stop mode (in which the same special symbols stop such as 7-7-7 and this stop mode is generally called "big combination"), the game shifts to the special gaming state beneficial for the player. In general Japanese Pachinko gaming machine, the variable display of the special symbols is started on condition that balls 15 shot within the gaming plate by operation of the shooting handle enter into a predetermined winning hole (so-called "variable display start hole"). After a predetermined time is elapsed the variable display of the special symbols stops. 20

[0 1 1 7]

In this kind of Japanese Pachinko gaming machine, it may be arranged 25 the liquid crystal display device (the second display means) and the first display means (for example, drum-type reels) at a more rear side than the display area (display plane) of the liquid crystal display device when seeing the front side of the gaming machine. And the special symbols may be variably

displayed on one or both of the first display means (for example, the liquid crystal display device) and the second display means (for example, drum-type reels).

[0 1 1 8]

5 The above mentioned game result display means may be constructed so as to include the first display means and the second display means provided at a more front side than the display area of the first display means when seeing the front surface of the gaming machine. And the game result display means may be constructed so as to include the first display means and the second display means provided at a more front side than the display area of the first display means when seeing the front side of the gaming machine.

[0 1 1 9]

10 The above mentioned rear illumination means illuminates the second display means from the backside thereof. And the above mentioned front illumination means illuminates the second display means from the backside of thereof. And the front illumination means may illuminate the second display means from the side plane thereof.

[0 1 2 0]

15 The above mentioned first display means and/or the second display means may be formed in a curved shape. As for extent of the curvature, the first display means and the second display means may have substantially the same curvature. Thereby, there may be a case that design of the gaming machine is improved and the gaming machine is made attractive. Even if the first display means is curved with a small radius of curvature or with a large radius of curvature, the above same effect can be obtained.

[0 1 2 1]

The above mentioned reflection means corresponds to means which has at least function to refract a part or whole of light led by the light leading

means toward the liquid crystal panel and illuminate the liquid crystal panel.

[0 1 2 2]

The above mentioned game start instruction means may be a variable symbol display start hole which produces an output signal when the winning combination or passage of the ball is detected. The game start instruction means in the ball flipping machine corresponds to the variable display start hole for the special symbols (or the start gate), the variable display start hole for the common symbols, the various judging symbol display start holes (or the start gates).

[0 1 2 3]

In a case that the above mentioned internal winning combination determination means determines the predetermined combination as the internal winning combination, one or plural illumination means included in the common illumination means is/are turned off. Or the illumination means may always be turned off.

[0 1 2 4]

There may be a case that one or plural illumination means included in the common illumination means is/are turned off at the substantially same timing that the above mentioned internal winning combination determination means determines the predetermined combination as the internal winning combination. Or the illumination means may always be turned off.

[0 1 2 5]

As for variable display by the illumination means included in the common illumination means, it is conceivable various display modes. For example, it may be constructed so as to be able to execute the special symbol variable display. Here, the special symbol variable display can be executed in the mode such as: brightness in a part or whole of the display part in the illumination means differs from that in the non-specific symbol variable

display; still images, moving images, specific letters, numbers, figures, characters, which are not displayed in the non-specific symbol variable display, are displayed; variable display speed differs from that in the non-specific symbol variable display. Further, voluntary display modes may be utilized.

- 5 And in a case that the specific symbol variable display is conducted, it may be constructed that the beneficial state for the player occurs with high probability in comparison with the case that the specific symbol variable display is not done. Thereby, it can be included the effect that the player's expectation increases, in excess of the previous case. Thus, such effect can contribute to
10 increase of interest.

【 0 1 2 6 】

As for the means adopted as the third display means, it may be adopted display devices which is applicable as the first display means and the second display means, as mentioned above. It may be a case that one or plural effect
15 display reels is/are utilized as the third display means, and both the first display means and the third means are arranged at the rear surface or side of the second display means. In this case, the symbol display area through which the player sees the display area of the third display means may be provided in the second display means. Thereby, the player can easily
20 recognize the display contents on the display area of the third display means, thus this construction is very preferable.

【 0 1 2 7 】

Further, it may be controlled so that the images formed by superimposing the images of the second display means and the images of the
25 third display means are seen by the player, and when such control occurs, the beneficial state occurs with higher probability than the case that such control does not occur. Thereby, it can be included the effect that the player's expectation increases, in excess of the previous case. Thus, such effect can

contribute to increase of interest.

[0 1 2 8]

Further, any one of the first display means, the second display means and the third display means may be constructed form a movable structure with shapes such as figures, dolls, animals, insects, famous structures, fishes, vehicles. For example, the above structures may be moved with rotation, swing, reciprocal movement or vibration in cases that: the special combination is internally won, the special combination is materialized, the number of the combination which is as same as the special combination internally won but not materialized exceeds a predetermined number, the special images are displayed on the display means different from the above structures. And there may be a case that the above structure is constructed from plural members and a part of the members is/are moved. In this case, there may be a case that it can be further expected more various effects by displaying except for the image display device.

[0 1 2 9]

Further, the front illumination means may be arranged at the front side of the first display means and the second display means. In this case, if the inside of the game arcade is dark, the front illumination means can illuminate both the first display means and the second display means with enough light. Therefore, there may be a case that the player can clearly recognize the images displayed on the display means, thus it can be expected that the player can enjoy more various effect in the gaming machine.

[0 1 3 0]

Although only some exemplary embodiments of this invention have been described in detail above, those skilled in the art will readily appreciated that many modifications are possible in the exemplary embodiments without materially departing from the novel teachings and advantages of this invention.

Accordingly, all such modifications are intended to be included within the scope of this invention.

[0 1 3 1]

This application is related to co-pending U.S. patent applications entitles

- 5 "GAMING MACHINE" referred to as Attorney Cocket No. SHO-0019,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0020,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0021,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0022,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0023,
- 10 "GAMING MACHINE" referred to as Attorney Docket No. SHO-0024,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0025,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0026,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0027,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0028,
- 15 "GAMING MACHINE" referred to as Attorney Docket No. SHO-0029,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0030,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0031,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0032,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0033,
- 20 "GAMING MACHINE" referred to as Attorney Docket No. SHO-0034,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0035,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0036,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0037,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0038,
- 25 "GAMING MACHINE" referred to as Attorney Docket No. SHO-0039,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0040,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0041,
- "GAMING MACHINE" referred to as Attorney Docket No. SHO-0042,

"GAMING MACHINE" referred to as Attorney Docket No. SHO-0043,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0044,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0045,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0046,
5 "GAMING MACHINE" referred to as Attorney Docket No. SHO-0047,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0048,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0049,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0050,
"GAMING MACHINE" referred to as Attorney Docket No. SHO-0051,
10 "GAMING MACHINE" referred to as Attorney Docket No. SHO-0052, "MOTOR
STOP CONTROL DEVICE" referred to as Attorney Docket No. 0053, "GAMING
 MACHINE" referred to as Attorney Docket No. SHO-0054, "GAMING
 MACHINE" referred to as Attorney Docket No. SHO-0055, "GAMING
 MACHINE" referred to as Attorney Docket No. SHO-0056, "GAMING
15 MACHINE" referred to as Attorney Docket No. SHO-0057, respectively, all the
applications being filed on October 31, 2003, herewith. The co-pending
applications including specifications, drawings and claims are expressly
incorporated herein by reference in their entirety.